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SCIENCE.

FRIDAY, JUNE 20, 1884.

COMMENT AND CRITICISM.

COMMENTS and criticisms, at this season, turn naturally toward the schools and colleges which are holding their annual assemblies, and bestowing their academic honors. A year ago, at Harvard, a vigorous speaker applied the match to materials which proved to be very explosive; and since then we have had a succession of arguments, public and private, with appeals to the law and to the testimony, European and American, respecting the value of different branches of knowledge, and the proper order of studies. Having read the various pamphlets and magazine articles which have appeared on this subject by Adams, Hofmann, White, Dyer, James, Fisher, Sumner, and Eliot, and many others; having watched the controversy, carried on in the newspapers, — it seems to us that the discussion, though rather monotonous to those who have previously thought it out, has been timely, vigorous, and useful. Probably the leaders of the battle have not in the least changed their opinions; but we think that the educated public has a clearer notion of the meaning of a liberal education, and that sounder views upon the relations of literature and science are likely to prevail, as a result of this discussion.

As to ancient life and letters, it is obvious that more and more is to be done in this country for their study. Classical teachers, conscious of the deficiencies of former days, are endeavoring to secure more enthusiasm and higher scholarship by the use of better text-books, better methods of instruction, and ampler means of illustration; and, with great advantage both to teachers and pupils, they are eliminating from the classical classrooms, by various regulations, those who can not, or will not, or do not, learn their Greek and Latin. The country will certainly gain by this.

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But the Greek question, as it is called, is only one phase of the movement: there is an increasing zest in the study of antiquity, — in whatever interprets the history of mankind. The work of Baird, Powell, Mallory, Brinton, Bandelier, and of many others, is illuminating the records of the savage life and of the early civilizations in this country. The establishment of an Archeological institute of America, and the opening of an American school of classical studies in Athens, are indications of activity in the field of classical inquiry. The lectures given in various cities last winter — by Clarke on his exploration of Assos, by Waldstein on Greek archeology, and by Stillman on his studies in the Levant — are similar signs. Before many months have passed, a distinguished archeologist from Rome, the explorer of the Forum, will be lecturing among us. Collections of casts and photographs and coins are now to be found near all our classical colleges. The *American journal of philology* has reached its sixth volume, with marks of increasing value, and without drawing off material from the American oriental and the American philological societies. Even Assyrian antiquities are receiving the most serious attention in this country from men trained in Germany, and acknowledged to be most competent for the interpretation of cuneiform inscriptions. All these facts are indications to our minds that the study of antiquity is in no danger at present of being undervalued by Americans. Certainly the lovers of Greek culture need not be alarmed; for the flower of ancient literature and art will surely not be slighted by an intelligent community, once fully awakened to the study of the remote past.

On the other hand, the claims of science are receiving more and more recognition. The great laboratories begun or completed within the year at Cambridge, New Haven, Baltimore, and Ithaca, are signs, which everybody can

understand, that the physical and natural sciences are more than ever to be encouraged. Original researches are in progress in private and in public laboratories to an extent unknown among us a few years ago. More ample means of publication, especially in subjects which require costly illustration, are loudly called for. Three or four such memoirs proceeding from American laboratories have been offered to the Royal society in London, and have been ordered to be printed in their Proceedings, because there was no place for them here. The national government, with a parsimonious hand, but still with increasing wisdom, is providing for such scientific publications as are more or less pertinent to the public service. Schools of technology are increasing in number and in power. It is more and more openly asserted, that no one in these days is receiving a truly liberal education, unless he adds to mathematics and languages an acquaintance with at least one branch of scientific inquiry, derived in part from work in a laboratory, and from personal observation of the methods of research. Seaside laboratories at Newport, Wood's Holl, Annisquam, and Beaufort, are giving facilities for the study of life at the seashore, as years ago opportunities were given in the interior to the student and collector of fossils.

As we look at the situation, and recall such facts as we have stated, we believe that in American education the claims of literature and science are fairly adjusted. More ought to be done in both directions. The richest of our colleges are poor. Were the income of Harvard to be doubled, every dollar could be well employed at once. Were there to be a dozen Harvards and Yales, with plans as wise as those which have governed these old foundations, and with means as ample, the country would reap the benefits.

If the excellent recommendations made by the National academy of sciences five or six years ago had then been fully adopted by congress, we should probably have been spared

the present suggestion to a congressional committee, that the work of the coast-survey should be divided; the hydrography and coast triangulation to be assigned to the hydrographic office of the navy department, and the geodetic work to the geological survey of the interior department. It was by the advice of the academy that the present geological survey arose, practically by the consolidation of three previously existing organizations. And in its memorandum, drawn up with great care and skill, the academy recommended that the coast-survey should be transferred to the interior department, "retaining its original field of operations, and assuming also the entire mensuration of the public domain; and that, so modified and extended, it hereafter be known as the U. S. coast and interior survey."

The purpose of the academy was plain,—to bring together, under one department, the coast (and interior) survey, for the mensuration and mapping of the country; the geological survey, for the study of its geological structure and natural resources; and the land-office, for the disposition and sale of public lands. The two latter would require their own maps, based upon geodetic points furnished by the first; and the land-office could obtain from the geological survey all the information it required as to the value and classification of lands. The entire survey of the public domain would thus fall, as is proper, under one department; and that co-ordination of work and mutual co-operation imperatively required would be obtainable without difficulty, and with the least waste.

In no event should the work of the coast-survey be divided: it forms an harmonious and congruous whole. Hydrography must be based on geodetic work. Submarine topography is important to an understanding of the structure of a continent. Nor is a geological survey deeply concerned in the niceties of refined geodetic measurements, nor in geodetic questions as such. For its purposes, work of a more rapid and superficial kind suffices; and it were much to be feared, that, in its subordination to

the geological survey, the excellence of the work of our coast-survey, now justly the highest pride of our nation's science, would deteriorate. As it stands, it may fearlessly challenge comparison with similar work by any European nation in precision, elegance, and economy. Its work is for all time.

A RECORD of the opening and closing of navigation at York Factory, Hudson's Bay, extending from 1828 to 1880, has been communicated by W. Woods of the Hudson's-Bay company. The latest date of open water in spring is June 1; the earliest closing of navigation, Nov. 3. The earliest opening was May 4; the latest closing, Dec. 9. The season, then, extends over from five to seven months, with an average of six months open water. The time when navigation would be available is limited, however, by the time of open water in Hudson's Straits, by which the bay is reached. This comprises only July, August, and September, and possibly part of October; but exact advices are not yet attainable. The question of the navigability of the Hudson's-Bay route to Europe is of vast importance for the settlers of Manitoba and the Saskatchewan; since, if it be available, they can, by a comparatively short railway-transit, reach tidewater with their crops, which otherwise cannot possibly compete with those of the north-western United States. It is understood that a trial is to be made of the route, and that a reconnoissance of Hudson's Bay, of which there are no good charts, will shortly be attempted.

LETTERS TO THE EDITOR.

* * * Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The deep-sea fish, *Malacosteus*.

IN reading the translation of Mr. Filhol's article on the deep-sea fishes collected by the *Talisman* (*Science*, May 23), I have been somewhat surprised by recognizing, in A. Tissandier's figure of *Malacosteus niger*, an old acquaintance, the source of which may be observed in *Bost. journ. nat. hist.*, vi. plate v.

While upon this subject of *Malacosteus*, it may be interesting to note, that, in several specimens of *M. niger* now in the National museum, the slender band connecting the tongue with the mandibular symphysis, which has long been regarded as a tangled hyoid

barbel, is really not free at either end, and may be only a muscle concerned in the movement of the lower jaw. I have not yet been able to find a true hyoid barbel. The pectoral contains three rays instead of five, as counted by Dr. Ayres; and the caudal is forked, and not convex.

TARLETON H. BEAN,
Curator department of fishes.

U. S. national museum, May 28.

[By an oversight on our part, we neglected to state that the illustrations of the two articles in No. 68 on deep-sea fishes were copied in part from *La Nature*, and in part from *Science et nature*. Those on p. 621 came from the latter journal, the others from the former, but not all of them in connection with the article translated. — Ed.]

A bad habit of the fox-squirrel (*Sciurus niger*, var. *ludovicianus*).

Madison people pride themselves not a little on the number and tameness of their fox-squirrels, which are found by scores in the shade-trees of the capitol park and the residence streets of the city. Protected by a special ordinance, they have multiplied rapidly, and scarcely know what fear is, running along before one, on the sidewalk or fence, and occasionally even stopping, and allowing themselves to be touched, in the hope of getting a nut. We consider them decidedly more ornamental and worthy of good treatment than the ubiquitous blue-jay or sparrow, and never tire of watching their pretty ways. But to-day I noticed several engaged in far less commendable business than hiding, or opening acorns.

While passing under a row of elms, my attention was attracted by a number of short twigs lying on the sidewalk. About a hundred were counted under the first tree. They were of nearly uniform size, six or eight inches long, including the young growth of the season and a short piece of last year's wood, with one or two bunches of the nearly ripe fruit.

After a gale in the early fall, the ground under the white elms is sometimes covered with leafy branches of about the same size, which separate by a joint at the site of a former winter bud, like the so-called brittle branches of poplars and willows, which they also resemble in being a sort of natural cuttings, serving in part for propagation.¹ In the present instance, however, the ends of the twigs did not show the smooth surface of those which fall naturally; and, as there was no indication of the work of a pruner, I turned my attention to the top of the tree, where it was directed by a twig falling just as I looked up. Following its course, I saw a squirrel, comfortably seated on one of the upper branches, busily at work on the fruit of a second twig, which was soon dropped for another. No less than five were broken off in a single minute; and, while I watched, the falling twigs averaged one a minute. They were dexterously snapped off just below the fruit-cluster, a bite or two often helping in the operation. The seed was removed from each of the small samaras by a single adroit cut on one side; and, long before the rifled branch had reached the ground, another was undergoing the same fate. The dinner of this one squirrel

¹ Frank devotes a few pages of his *Krankheiten der pflanzen* (pp. 34, 35) to this spontaneous pruning, which he considers a means of removing weakly twigs, after their vegetative period is ended. Its occurrence is mentioned as especially noticeable in *Taxodium*, *Quercus*, *Populus*, and *Salix*, but not by any means confined to these genera.